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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/895,787	06/30/2001	Gurer Emir	8003-390	7334

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EXAMINER	
GILLIAM, BARBARA LEE	

ART UNIT	PAPER NUMBER
1752	

DATE MAILED: 06/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/895,787	EMIR ET AL.	
	Examiner	Art Unit	
	Barbara Gilliam	1752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 3/9/04
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment filed March 15, 2004 has been received and fully considered.

2. Claims 1-32 are pending.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 14, 18, 22, 26, 30-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Mandal et al.

a. The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

b. In US Patent No. 6,238,735, Mandal et al. teach a method of uniformly coating a substrate with a polymer solution to produce a film of uniform thickness which includes mounting the substrate inside an enclosed housing and passing a control gas,

which may be solvent vapor bearing gas into the housing through an inlet. The polymer solution is deposited onto the surface of the substrate in the housing and the substrate is then spun. The control gas and any solvent vapor and particulate contaminants suspended in the control gas are exhausted from the housing through an outlet and the solvent vapor concentration is controlled by controlling the temperature of the housing and the solvent from which the solvent vapor-bearing gas is produced. Instead mixing gases having different solvent concentrations can control the concentration. The humidity of the gas may also be controlled (abstract & claim 1). The method of Mandal et al. can further comprise a step of passing solvent-free, humid gas over the coated substrate (claim 6). The humidity of the humid gas is controlled by means of a temperature and humidity controller (claim 7). The humidity of the humid gas is controlled to have the relative humidity in the range of 40% to 45% (claim 8). The temperature of the humid gas is controlled by means of a temperature and humidity controller (claim 9). The depositing means can include a dispensing head means mounted above the chuck for dispensing a stream of the polymer solution onto the surface of the substrate, the dispensing head means being moveable relative to the substrate. If the substrate has a substantially circular shape the dispensing head means is typically moveable substantially radialy across the surface of the substrate (column 2, line 66 – column 3, line 3).

c. Mandal et al. clearly teach controlling the solvent vapor concentration by controlling the temperature of the housing and the solvent from which the solvent vapor-bearing gas is produced or by mixing gases having different solvent concentrations (column) which are identical to the presently disclosed methods for

controlling the solvent vapor concentration. However, there is no specific teachings in Mandal et al. of the desired solvent vapor concentration range. Absent any contrary evidence, it is the Examiner's position that if one of ordinary skill in the art would use any of the methods of controlling the solvent vapor concentration disclosed by Mandal et al., one would expect to obtain a solvent vapor concentration within the approximate range of 42 % and 80%. MPEP 2112. *In re King*, 801 F.2d 1324, 231 USPQ 136 (Fed. Cir. 1986). *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 2-13, 15-17, 19-21, 23-25, 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mandal et al. in view in view of Chun et al.

a. The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the

reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

b. As indicated in the previous rejection, Mandal et al. teach a method of uniformly coating a substrate with a polymer solution to produce a film of uniform thickness which includes mounting the substrate inside an enclosed housing and passing a solvent vapor bearing gas into the housing through an inlet. The polymer solution is deposited onto the surface of the substrate in the housing and the substrate is then spun. However, Mandal et al. is not specific with respect to the coating method. It would have been obvious to use a known method wherein a uniform coating is obtained such as the high efficiency photoresist coating method taught by Chun et al.

c. In US Patent No. 6,191,053, Chun et al. teach a method and apparatus for coating semiconductor substrates with organic photoresist polymers by extruding a ribbon of photoresist in a spiral pattern which covers the entire top surface of the wafer. In this method a wafer is mounted on a chuck, aligned horizontally and oriented upward. An extrusion head is positioned adjacent to the outer edge of the wafer and above the top surface of the wafer with an extrusion slot aligned radially with respect to

the wafer. The wafer is rotated and the extrusion head moved radially toward the center of the wafer while photoresist is extruded out the extrusion slot. The rotation rate of the wafer and the radial speed of the extrusion head are controlled so that the tangential velocity of the extrusion head with respect to the wafer is a constant (abstract).

c. Therefore it would have been obvious to one of ordinary skill in the art to uniformly coat a substrate with a polymer solution to produce a film of uniform thickness which includes mounting a substrate wafer inside an enclosed housing, passing a solvent vapor bearing gas into the housing through an inlet and coating the substrate by positioning an extrusion head adjacent to the outer edge of the wafer and above the top surface of the wafer with an extrusion slot aligned radially with respect to the wafer, rotating the wafer and radially moving the extrusion head toward the center of the wafer while extruding photoresist out the extrusion slot wherein the rotation rate of the wafer and the radial speed of the extrusion head are controlled so that the tangential velocity of the extrusion head with respect to the wafer is a constant based on the teachings of Chun et al. (column 2, lines 38-45).

Response to Arguments

7. Applicant's arguments filed March 15, 2004 have been fully considered but they are not persuasive.

a. Applicant pointed out that the relative humidity taught by Mandal et al. is for a solvent-free humid gas. The Examiner concedes the argument previously presented was flawed however, the claims of record are still rejected under Mandal et al. and Mandal et al. in combination with Chun et al. for the reasons set forth above.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barbara Gilliam whose telephone number is 571-272-1330. The examiner can normally be reached on Monday through Thursday, 8:00 AM - 5:30 PM.

a. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

b. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Barbara Gilliam

Barbara Gilliam
Examiner
Art Unit 1752

bg
June 10, 2004